Code No. 29

FACULTY OF ENGINEERING

B.E 2/4 (Civil) I-Semester (Backlog) Examination, May/June 2018

Subject : Engineering Geology

Time : 3 Hours **Max Marks : 75**

Note: Answer all questions from Part – A & Any five questions from Part – B.

Part - A (25 Marks)

1. The source rock for gneiss is (2)
2. Fossils occur only in (2)
3. Explain the benefits and uses of aerial photograph (3)
4. Differentiate between lineation and foliation (3)
5. Define springs? (2)
6. How do you control the accumulation of silt in the reservoir (3)
7. Define primary porosity and secondary porosity (3)
8. Write at least three essential and accessory minerals present in diorite (3)
9. Define confined and unconfined aquifers (2)
10. What is the difference between normal fault & thrust fault (2)

Part - B (50 Marks)

11. Illustrate some of the reasons for the tunnel failure (10)
12. a) How do you identify different types of fault in the field (5)

    b) In schlumberger configuration the current, voltage values obtained are 150 Ma, 95 respectively for 4B/2 = 20M and MN/Z = 10 M of current and potential electrodes spacing. Calculate the apparent resistivity (5)
13. Explain the following (10)

    a) Thermal metamorphism b) Bore hole drilling

    c) Current bedding and ripple marks d) Moth's scale of hardness
14. a) Describe in detail methods of ground water exploration (6)

    b) Explain how geological map and aerial photographs are useful in investigation of a dam site. (4)
15. a) What are the general strategies require for safety, Stability and economy in civil engineering construction (6)

    b) Define RQD? Explain the stress – strain behavior of rock (4)
16. Describe texture, structure, mineralogy of the following rocks (10)

    a) Granite – Gneiss b) Limestone – Marble c) Shale – Slate d) literate
17. a) Write the physical properties uses and chemical composition of

    1) Talc 2) Olivine (5)

    b) Explain slake durability test (5)

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Code No. 38

FACULTY OF ENGINEERING

B.E. 2/4 (EEE / Inst.) I – Semester (Backlog) Examination, June 2018

Subject: Electrical Measurements and Instruments

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1	Distinguish between the analog and digital measurements.	3
2	What is meter constant?	2
3	Explain calibration of ammeter.	2
4	Distinguish between the single phase and three phase energy meter.	3
5	Define actual ratio and nominal ratio.	2
6	What is strain gauge?	3
7	Distinguish between analog and digital transducers.	3
8	What is the use of Wagners Earthing device?	2
9	What is leakage factor? Explain.	3
10	What is the use of oscilloscope infrequency measurements?	2

PART – B (5x10 = 50 Marks)

11 Explain the construction details and working principle of moving iron instruments. Also derive an expression for deflecting torque of moving iron instruments. 10

12 a) With the help of neat diagram, explain the working principle of maximum demand indicator. 5

b) Explain the working of a Schering bridge with neat diagram. Draw the phasor diagram at balance. 5

13 a) Explain Hall effect transducer with a neat diagram. 5

b) With the help of neat diagram, explain the working of Weston type of synchroscope. 5

14 a) Explain with a neat diagram the working of single phase energy meter. Derive the equation for driving torque and breaking torque. 5

b) Explain, how to obtain B-H curve using CRO. 5

15 Construction of Ballistic galvanometer, theory of ballistic galvanometer and show that charge is proportional to the deflection $^{-}$ at any instant. 10

16 Explain with the help of neat diagram, working of AC coordinate type potentiometer. 10

…2.

17 A 1000/5 A, 50 Hz current transformer has a secondary burden comprising a non-inductive impedance of 1.6Ω. The primary winding has one turn. Calculate the flux in the core and ratio error at full load. Neglect leakage reactance and assume the iron loss in the core to be 1.5 w at full load. The magnetizing mmf is 100 A. (10)

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Code No. 44

FACULTY OF ENGINEERING

B.E 2/4 (ECE) I-Semester (Backlog) Examination, May/June 2018

Subject : Electronic Devices

Time : 3 Hours **Max Marks : 75**

Note: Answer all questions from Part – A & Any five questions from Part – B.

Part - A (25 Marks)

1. Draw diode characteristics in forward and reverse bias (2)
2. A silicon diode has reverse saturation current of 2.5 μA at 300^{o} k. Find forward voltage for a forward current of 10ma. (3)
3. Compare a HWR and FWR (2)
4. Calculate the value of critical inductance in L section filter, given R_L = 30 ohms and fo=50Hz (3)
5. What is punch through, why does it occur (2)
6. Draw the input and output characteristics of BJT in Common collector configuration (3)
7. Give the h Parameter model of BJT in CE mode for exact and approximate analysis (3)
8. Which BJT configuration is called as a buffer and why? (2)
9. List the difference between enhancement mode and depletion mode MOSFET (3)
10. Calculate drain resistance of FET given amplification factor is 80 and tansconductance is 2mS (2)

Part - B (50 Marks)

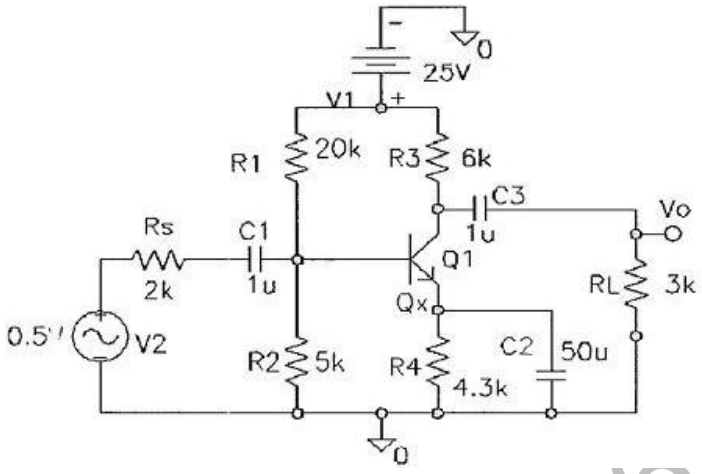
11. a) Obtain the expression of diffusion capacitance of diode (6)
    b) The current flowing through an ideal reverse biased germanium diode is found to be 0.4μA for a large reverse biased voltage. Calculate the current and the dynamic resistance of the diode when it is forward biased by 0.5 v at room temperature (4)

12 a) Draw the half wave rectifier circuit diagram and derive the expression Idc, Ir.m.s, ripple factor, PIV efficiency (7)
   b) For a HWR, the rms voltage is given as 110 volts, the transformer turns ratio is 8:1 Calculate Idc, Ir.m.s, ripple factor fiven RL = 800 ohms and Rf = 30 ohms (3)

13 a) Draw a BJT circuit with thermistor compensation and explain its operation (5)
   b) Design a self bias circuit given S=10, Vcc=12V, Beta =50 Q=(6V, 1.5mA). Assume appropriate parameters where necessary (5)

14 Perform DC and AC analysis for the following RC coupled common emitter BJT amplifier, assume hie = 1.1Kohm, hfe =50, hre = 2.5 $X10^{-4}$ and hoe=$24x10^{-6}$

…2



15 a) Draw the circuit of a source self bias circuit and obtain expression for its Q point (4)

b) Find Vgs, Id, Q point and transconductance for the source self bias jFET circuit shown below. Given RG = 2M ohm, Rd=4k ohm, Rs=1K ohm Vdd=20 Volts. Idss = 10mA and Vp = 4V

16 a) How is a Zener diode used as voltage regulator for line regulation (5)

b) Compare CE,CB and CC configuration (5)

17 Write short notes on

a) Breakdown diodes

b) UJT

c) MOSFET Operation (10)

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Code No. 46

FACULTY OF ENGINEERING

B.E. 2/4 (M/P) I - Semester (Backlog) Examination, May / June 2018

Subject : Machine Drawing

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & answer any five questions from Part-B.

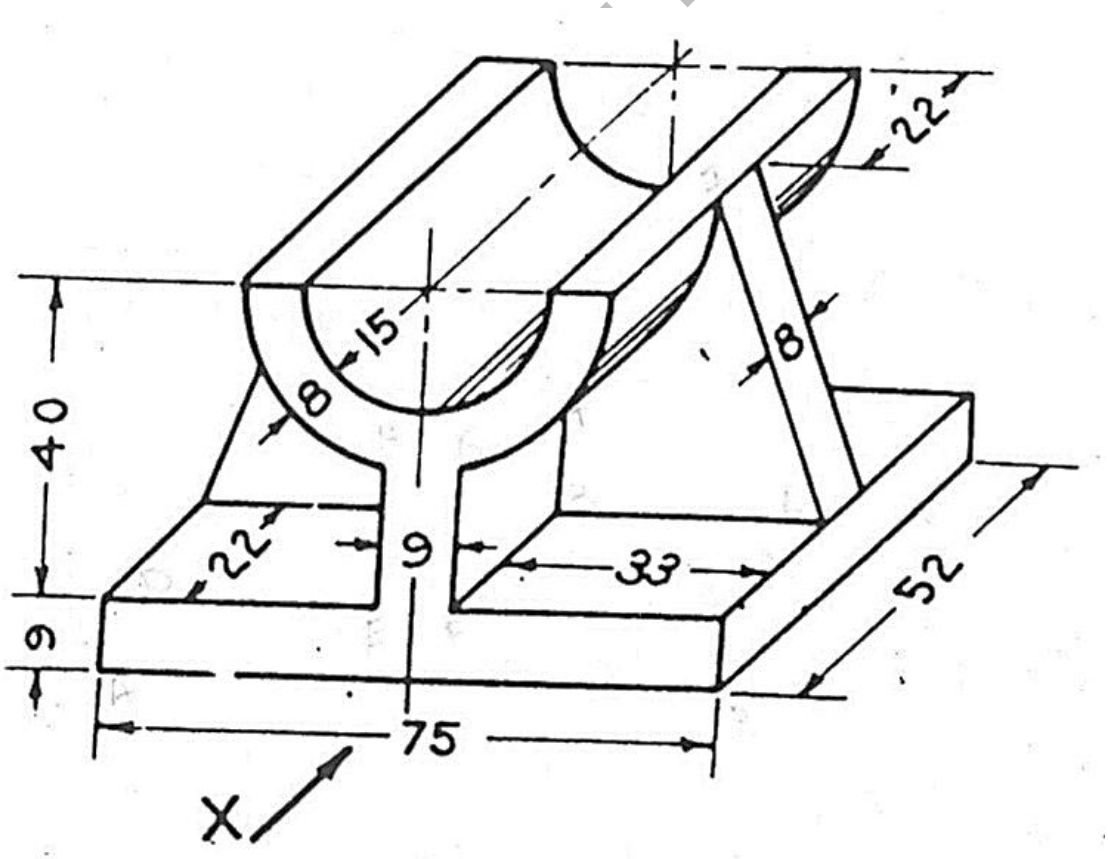
PART – A (25 Marks)

1 Draw three views of a Hexagonal headed bolt of nominal diameter 24mm and length 100mm with a hexagonal nut and washer in place. (7)

2 What do you mean by Caulking and fullering process in Riveted Joints? (4)

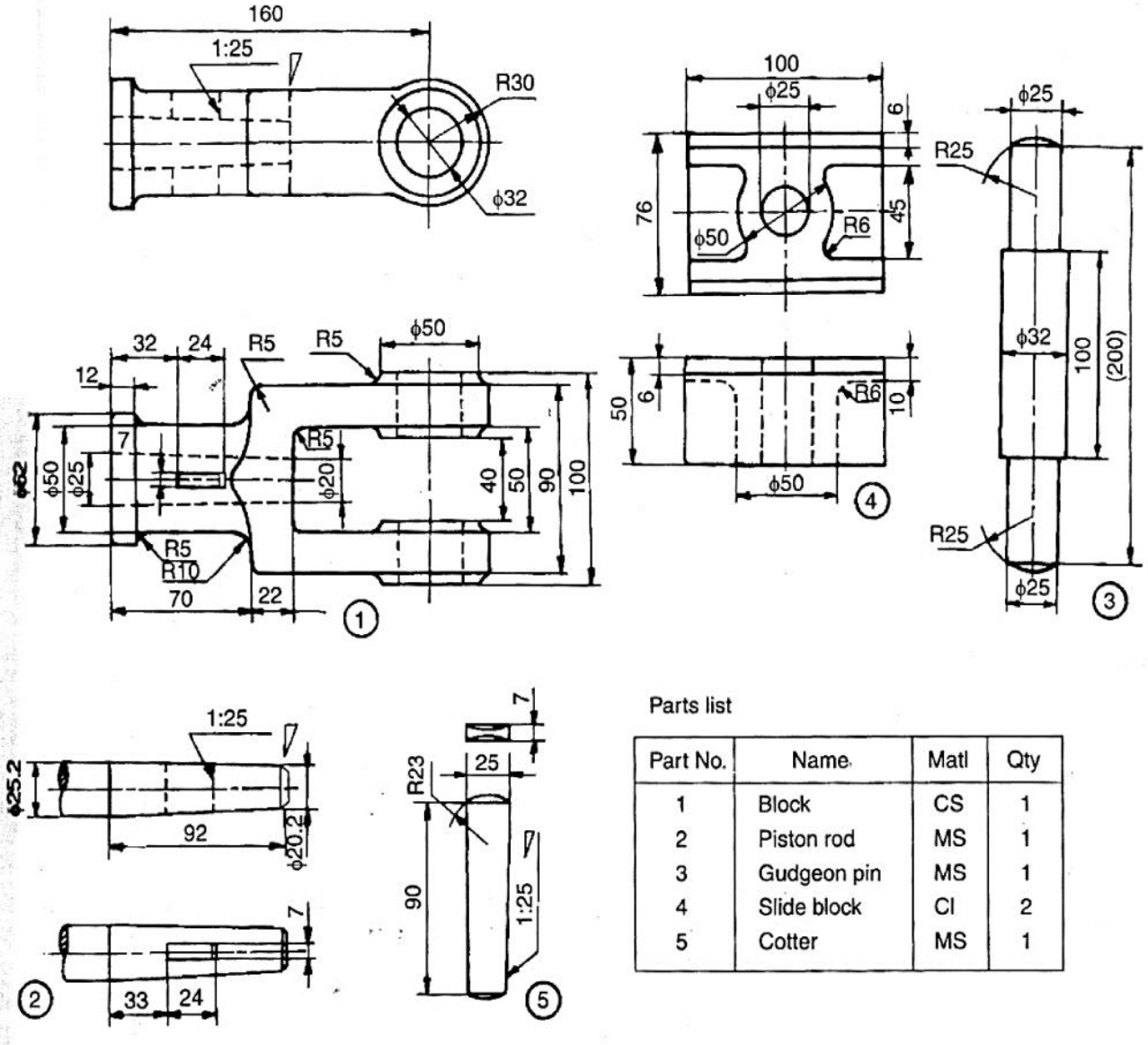
3 Draw the profile of ACME and buttress thread, pitch = 40 mm. (4)

4 Draw a Sectional front view and top view of the figure 1 shown below. (10)



PART - B (50 Marks)

5. Assemble the parts shown in fig.2 and draw, (*i*) half sectional view from the front, with bottom half in section and (*ii*) view from above.



Parts list

Part No.	Name	Matl	Qty
1	Block	CS	1
2	Piston rod	MS	1
3	Gudgeon pin	MS	1
4	Slide block	CI	2
5	Cotter	MS	1

Fig. 2 Steam engine crosshead

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Code No. 50

FACULTY OF ENGINEERING

B.E. 2/4 (AE) I - Semester (Backlog) Examination, May / June 2018

Subject : Automotive Engineering Drawing

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 Draw the front view and right side view of a hexagonal headed bolt of diameter 25mm.
2 Draw the profile of the following threads:
(a) Buttress (b) Square
3 Sketch neatly eye foundation bolt by giving suitable dimensions.
4 Draw the sectional front view and top view of a double riveted butt joint with single strap (zig-zag type) to join plates of thickness 10mm each.
5 Draw the front view and top view of the following figure 1:

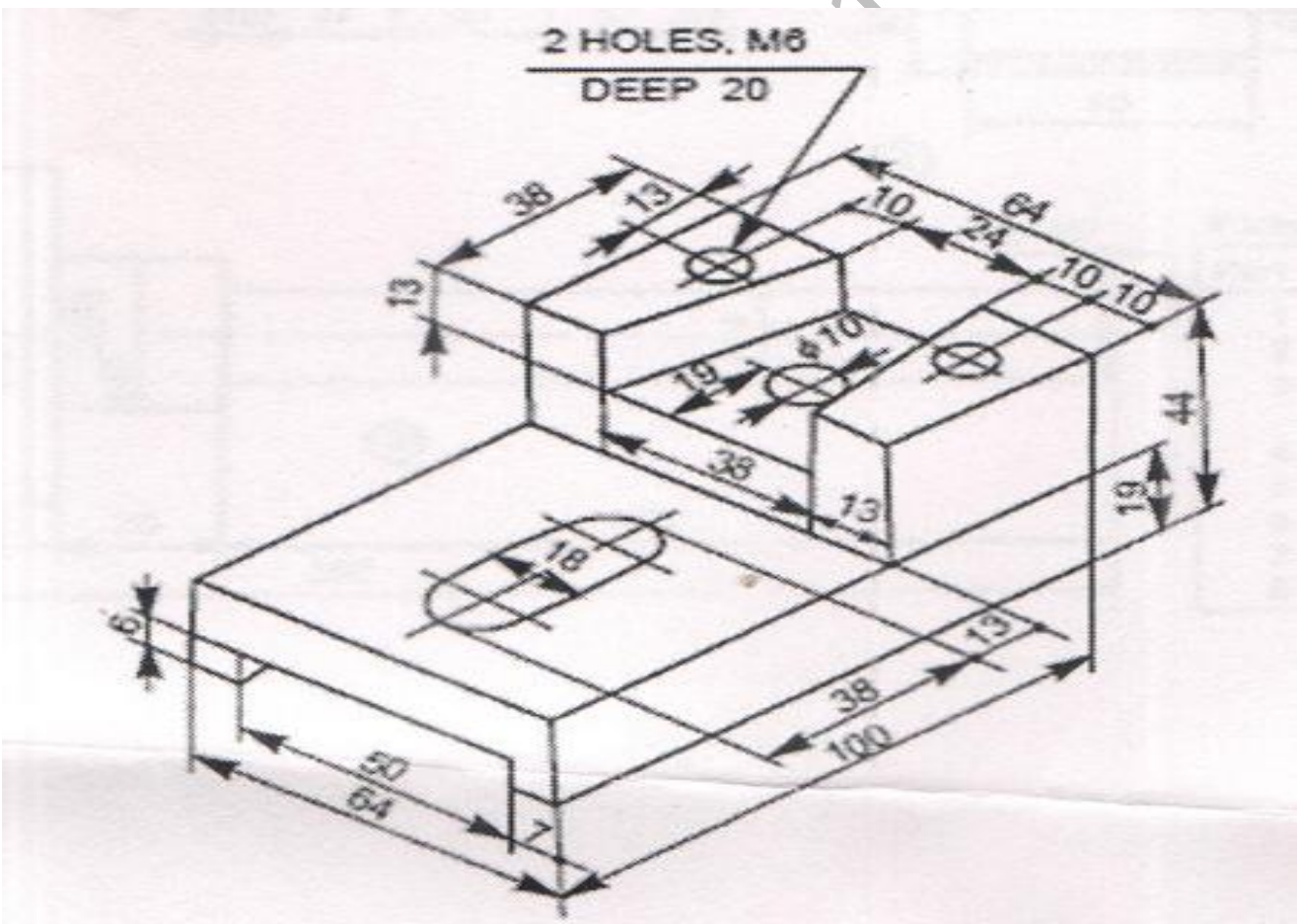


Figure 1

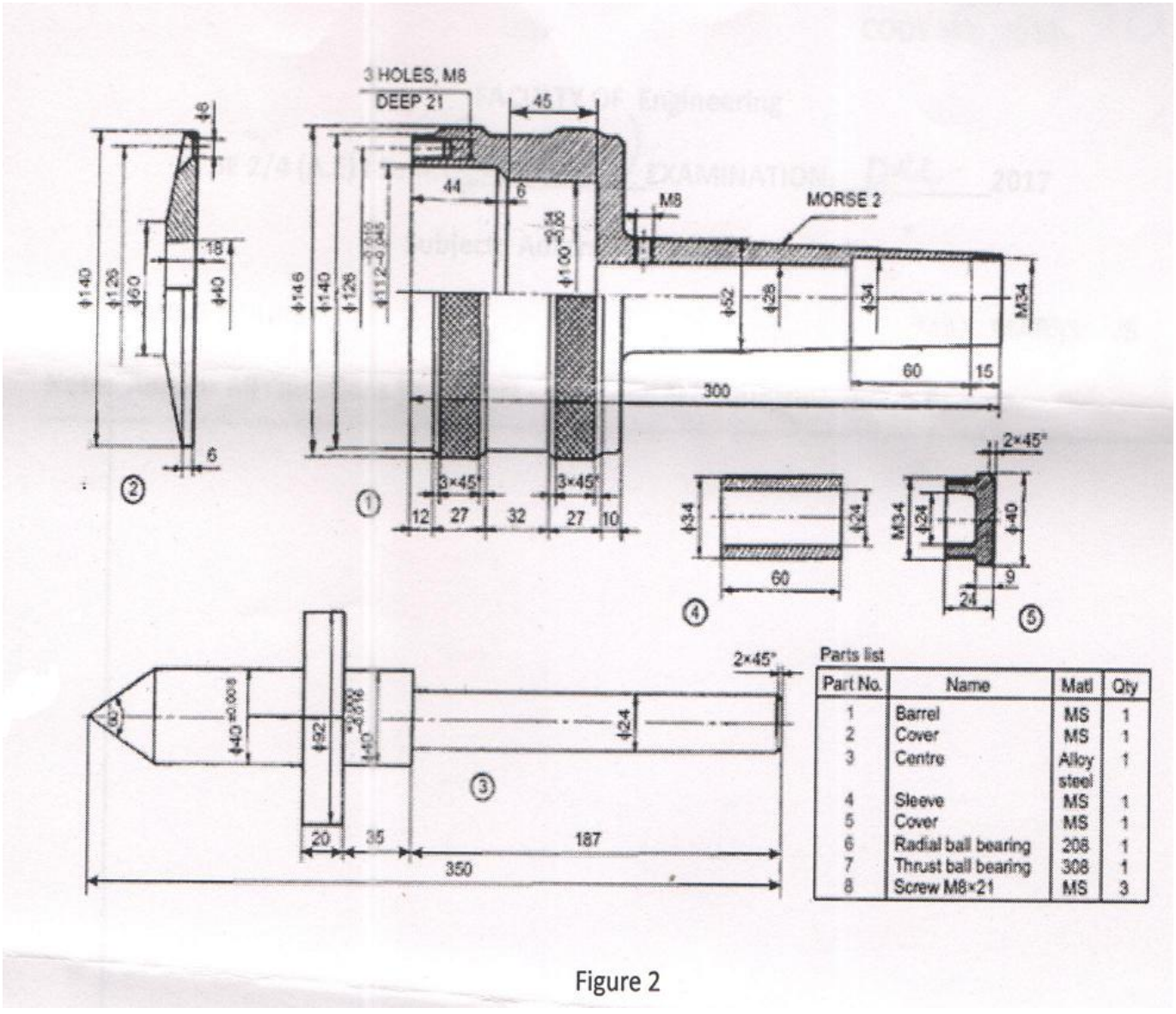
PART – B (50 Marks)

6 Assemble all the components shown in figure 2, to form Revolving centre assembly and draw:

(a) Full sectional front view

(b) Top view

(c) Left side view



Parts list

Part No.	Name	Matl	Qty
1	Barrel	MS	1
2	Cover	MS	1
3	Centre	Alloy steel	1
4	Sleeve	MS	1
5	Cover	MS	1
6	Radial ball bearing	206	1
7	Thrust ball bearing	308	1
8	Screw M8×21	MS	3

Figure 2

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Code No. 54

FACULTY OF ENGINEERING

B.E. 2/4 (CSE) I - Semester (Backlog) Examination, May / June 2018

Subject : Computer Architecture

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1	Draw the diagram of Arithmetic unit of ALU.	(3)
2	Write Register transfer language for interrupt cycle.	(2)
3	Define the following: (i) Micro Instruction (ii) Micro program	(2)
4	Compare the characteristics of RISC and CISC.	(3)
5	Mention the advantages of vector operations.	(2)
6	Design the circuit of BCD adder.	(3)
7	What is priority encoder?	(2)
8	What is the advantage of using interrupt driven I / O over program controlled I/O?	(3)
9	Explain the concept of memory hierarchy.	(2)
10	What is the basis for using cache memory?	(3)

PART – B (50 Marks)

11 Design the Arithmetic, Logic and shift unit block diagram and explain all its operations. (10)

12 (a) List out the computer Instructions and group them into broad categories. (3)
(b) Explain the instructions with examples. (7)

13 Explain the different operations involved in floating point division with the help of a neat flow chart and block diagram. (10)

14 Draw the block diagram of a computer with IOP. Explain how CPU and IOP communicate with each other with the help of flow chart. (10)

15 (a) Explain two-way set Associative mapping cache memory with an example. (5)
(b) Draw the block diagram of Associative memory with match logic. Explain how the read / write operations are done. (5)

16 (a) Explain in detail about 3 segment instruction pipeline. (5)
(b) Explain about Asynchronous serial data transfer with example. (5)

17 Write short notes on the following:
(a) Memory reference instructions (5)
(b) Hardwired control unit (5)

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Code No. 60

FACULTY OF INFORMATICS

B.E. 2/4 (IT) I-Semester (Backlog) Examination, May / June 2018

Subject : Electrical Circuits and Machines

Time : 3 hours **Max. Marks : 75**

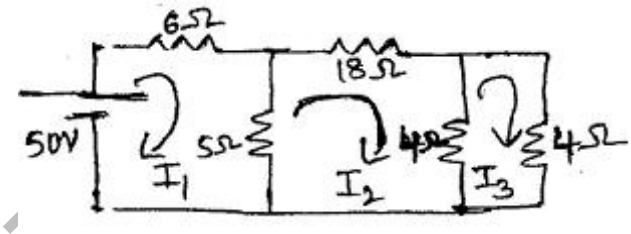
Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	Derive the expression for energy stores in capacitor.	3
2	Define Mutual inductance and coefficient of coupling.	2
3	What do you understand by 3-phase balanced circuits?	3
4	List out different types of losses that occur in a transformer.	2
5	Draw the characteristics of DC series motor and also mention its applications.	3
6	Mention different types of DC generators.	2
7	A 3ϕ, 6-pole induction motor is supplied from 400V, 50Hz supply. Calculate a) synchronous speed and b) speed of the motor when slip is 4%.	3
8	What happens when an induction motor suns at sync speed?	2
9	Differentiate BLDC and conventional DC motor.	3
10	Mention different types of stepper motor.	2

PART – B (50 Marks)

11 a) For the circuit shown below, find the currents I_1, I_2, I_3 using loop current method. 5



b) Derive equation to find the average and RMS value of a sinusoidal wave. Also find form factor of sine wave. 5

12 a) The power in a 3-phase circuit is measured by two wattmeter method. If input power is 10 KW at a power factor of 0.9 lagging. Calculate reading of watt meters. 5

b) Explain about auto transformer with neat diagram. 5

13 a) Derive the EMF equation of a DC generator. 5

b) Explain different types of speed control techniques of DC shunt motor with neat diagram. 5

14 a) Explain how rotating magnetic field is produced in 3-phase induction motor. 5

b) Explain briefly the star-delta starting of 3-ϕ induction motor with neat diagram. 5

..2

15 a) Explain split phase induction motor with circuit diagram and mention its applications. 5

b) Draw diagram of stepper motor and explain its working. 5

16 a) A 1-ϕ, 4KVA, 200/400 V, 50 Hz transformer has been tested for OC and SC test and following results were obtained :
OC test : 200V, 1A, 100W on LV side.
SC test : 15 V, 10A, 85W on HV side.
Determine the equivalent circuit parameters referred to primary. 5

b) State and explain Norton's theorem. 5

17 Write short notes on :

a) Speed torque characteristics of Induction motor. 5

b) Dot convention in coupled circuits. 5

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